

## **COAL FLY ASH IN EMBANKMENTS:**

(4-16-02) (Rev 1-25-08)

SP2 R70

### **Description**

This specification allows the contractor an option, with the approval of the Engineer, to use coal fly ash (coal combustion by-products) in embankments as a substitute for conventional borrow material.

When fly ash is used as a substitute for earth borrow material:

Request written approval from the Engineer at least forty days in advance of the intent to use fly ash.

Provide the specific locations and construction details of the placement as stated in the *North Carolina Administrative Code*, 15A NCAC 13B.1703.

Submit material properties and laboratory analysis of ash typical of the source to the Department prior to use for consideration of approval. Include in the test data characteristics of the ash leachate as determined by the EPA Toxicity Characteristic Leaching Procedure (Method 1311).

Provide the material from a supplier including all transportation and all necessary permits for transportation and storage before placement.

Coordinate delivery of volumes, trucking requirements and ash moisture content.

The Engineer and the Resource Conservation Engineer in the Alternative Delivery Unit will coordinate the requirements of the *North Carolina Administrative Code*, Title 15A, Chapter 13, Section .1700 and notify the contractor that all the necessary requirements have been met before the placement of structural fill using coal combustion by-products is allowed.

### **Material**

Supply coal fly ash from a Department approved source. A list is maintained by the Resource Conservation Engineer (919) 250-4150.

The following fly ash is unacceptable:

Frozen material.

Ash from boilers fired with both coal and petroleum coke.

Deliver fly ash in covered vehicles.

Prevent dusting of fly ash by conditioning with water. Excessively wet or dry and uncovered material arriving at the site will be rejected.

## **Construction Methods**

Place coal fly ash in the core of the embankment section with a minimum of 4 feet of earth cover to the outside limits of the embankments or subgrade and a minimum of 4 feet above the seasonal high ground-water table. Comply with 15A NCAC 13B .1704.

Construct embankments by placing fly ash in level uniform lifts with a maximum lift of 10 inches but not greater than can be compacted to a minimum density of 95 percent as determined by test methods in AASHTO T-99, Determination of Maximum Density and Optimum Moisture Content, Method A or C depending upon particle size of the product. Provide a moisture content at the time of compaction of within 4 percent of optimum but not greater than 1 percent above optimum as determined by AASHTO T-99, Method A or C.

## **Measurement and Payment**

*Borrow Excavation* will be made by truck volume measurement and paid for in cubic yards in accordance with Article 230-5 of the *2006 Standard Specifications*.